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Monitoring programs for drinking water - the beginning of the path to water supply risk management

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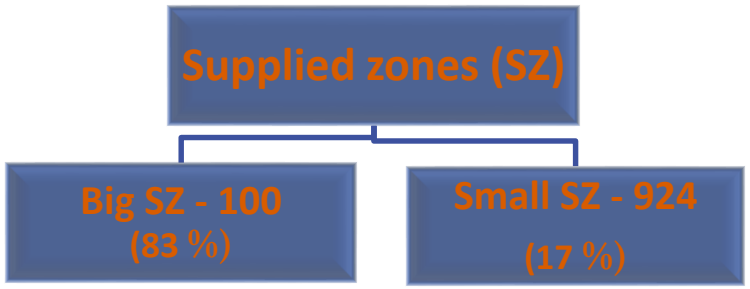
Zuzana Valovičová, Public Health Authority of the Slovak Republic

Slovakia and drinking water

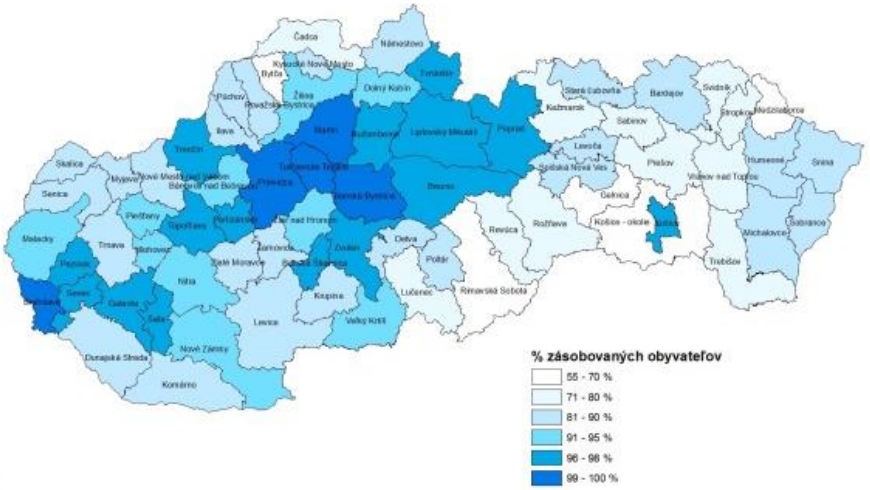
Slovakia

- Total area: 49 035 km²
- Number of inhabitants: 5 450 420
- Density of population: 110/km²
- Administrative division:
  8 regions
  79 districts
  140 towns
  2 933 villages
- Specific consumption of water in households: 77,84 l/inhab./day



Drinking water

- 89 % of inhab. are supplied by public water supply (mass supply of dwellings)
- regional differencies in supplies



- Sources of water: 20 % surface water
  80 % ground water

Legal framework for the supply of drinking water

European regulations

- *Council Directive 98/83/ EC of 3 November 1998 on the quality of water intended for human consumption*
- *Commission Directive (EU) 2015/1787 of 6 October 2015 amending Annexes II and III to Council Directive 98/83/EC on the quality of water intended for human consumption*
- *Council Directive 2013/51/EURATOM of 22 October 2013 laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption*

National regulations of the SR

- *Act No. 355/2007 Coll. on protection, promotion and development of public health and on change and amendment of some acts*
- *Ordinance of Ministry of Health of the SR No. 247/2017 Coll. on details on quality of drinking water, control of quality of drinking water, program of monitoring and risk management in supply of drinking water*
- *Act No. 442/2002 Coll. on public water supply and public canalization and on change and amendment of Act No. 276/2001 Coll. on regulation in networks branches*
- *Ordinance of Ministry of Environment of the SR No. 636/2004 Coll. on requirements for quality of raw water and for monitoring of quality of water in public water supplies*

Supervision over supplying of inhabitants

Competencies of state bodies

- **Ministry of Health**
  - Public Health Authority
  - 36 regional public health authorities (RPHA)

✓requirements on health safety of drinking water

✓monitoring at consumer's tap

✓state health supervision over supplying.....

- **Ministry of Environment + Ministry of Interior**
  - District Office of Environment
  - Water Research Institute

✓monitoring of water units

✓protection of water sources

✓supervision over public water supplies....

Control of quality of drinking water

1) Persons who produce and supply drinking water

✓ operational control (water in source, process of treatment, accumulation, distribution)

Operational control program of water suppliers

18 000 samples (2017)

2) RPHA

✓ monitoring of drinking water consumer's tap

✓ state health supervision

Monitoring program of RPHA

6 000 samples (2017)

Amendment of SR legislation in October 2017
3 „innovations“....in terms

1. Water suppliers
2. Management of risks in supplying of drinking water
3. Monitoring program

1. Water suppliers

Water suppliers – every person producing or supplying drinking water

a) operators of public water supplies

- ✓ *14 water companies*
- ✓ *321 municipalities*
- ✓ *53 other professionally competent subjects*

b) subjects with own water sources for business purposes and public interest (hotels, schools, firms...)

Amendment of SR legislation in October 2017

2. Management of risks in supplying

Management of risks in supplying – systematic process:

- ✓ **risk analysis** – identification of probability of occurrence and seriousness of unwanted consequences of dangerous events
- ✓ **risk assessment** – determination of a scale of risks and elaboration of measures for their mitigation or elimination
- ✓ **risk management** – adoption, introduction and control of measures on mitigation or elimination of unacceptable risks

Application in practice - voluntary ☹

Reasons of inadequate promotion of mandatory introduction in the SR:

- sufficient quality sources, high quality of drinking water mainly in big SZ, absence of diseases where drinking water is factor of transmission....

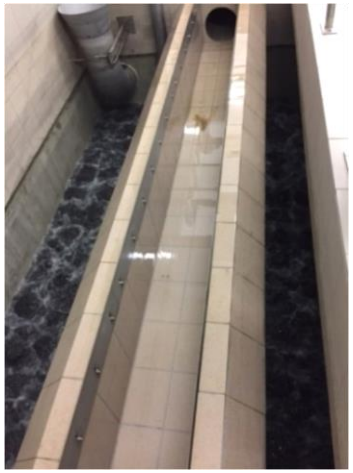
Amendment of SR legislation in October 2017

3. Monitoring program

- basic requirements, goals and content in accordance with Directive No. 2015/1787

REQUIREMENTS:

- ✓ every water supplier
- ✓ the whole drinking water supply system
- ✓ till 31/12/2018 submit to RPHA



Amendment of SR legislation in October 2017

3. Monitoring program

GOALS:

✓Providing of information on quality of drinking water as a proof of its health safety
✓Determination of the most suitable measures on elimination of health risks for consumer and checking of their efficacy

CONTENT:

✓ mandatory data:
(extent and frequency of quality control of water, data on source, extent and system of supplying and used technologies for treatment of water)

✓ optional data:
(information on control of river basin, water sampling, treatment, accumulation and distribution infrastructure, control of functionality and state of maintenance of equipment)

Guidebook for creation of monitoring programs

- Non-binding material for preparation of monitoring programs intended for suppliers of drinking water
- Document has a recommending character:
  - ✓ description of things which are from the hygienic aspect regarded as important for evaluation accuracy, reliability and safety of the system of drinking water supply...**an effort to incorporate risk based approach**
  - ✓ unification of criteria for all water suppliers and types of supply
  - ✓ harmonization of terminology with water supply practice
- Public Health Authority of the SR + Water Research Institute
- **www.uvzsr.sk** - July 2018
  http://www.uvzsr.sk/index.php?option=com_content&view=category&layout=blog&id=213&Itemid=65

Guidebook for creation of monitoring programs

- Text part
- ENCLOSURES

  Enclosure No. 1: SAMPLE 1 – Public water supply/Supplied zone

  Enclosure No. 2: SAMPLE 2 – Own water source

  Enclosure No. 3: Catalogue of dangers and dangerous events for public water supply – Simple system*

  Enclosure No. 4: Catalogue of dangers and dangerous events for public water supply – Complex system

  Enclosure No. 5: Catalogue of dangers and dangerous events for own water source

Using of sample and catalogues depending on type of supply.... basic data on system, objects, performed activities and events which can pose a threat for health safety of drinking water.

** Simple system of supply – water supply serving up to 5 000 inhabitants or supplies less than 1 000 m^3 of drinking water per day.*

Monitoring program according to Guidebook....

- **Contact data on supplier of drinking water and responsible person**
- **Basic passport data on supply**:
  - location, period of operation, permission for water intake and water construction, number of served inhabitants, production of water, exceptions granted,
  - length of distribution network and used materials,
  - description of sources and protected zones,
  - technological procedures of treatment including agents for chemical treatment and disinfection,
  - data on water supply objects, cleaning and maintenance,
  - dangers and dangerous events.
- **Data on control of quality of water**:
  - extent and frequency of sampling and analyses of water in source, during treatment, accumulation, distribution and in the place of its supply to consumer,
  - information on accreditation of sampling and analyses.
- **Maps and schemes**
- **Enclosures:** e.g. documents on preparation for chemical treatment and disinfection

First experiences with programs....

1. Elaboration and submission of programs to RPHA

*** big water supply companies

** municipalities and other subjects operating public water supplies

(more frequent insufficiencies and lower professional level)

* subjects with own water sources e.g. in operation of boarding, accommodation facilities...(submitted or not formal documents)

2. Utilization of processes of risks management

✓ None of the suppliers used during elaboration principles of risk analysis with the exception of those which are mandatory or recommended in guidebook

First experiences with programs....

3. The most frequent insufficiencies

- ✓ documents for water intake, water constructions or for protected areas of water supplies (objects were constructed in last century for the subjects which at the present time do not exist...)
- ✓ documents for preparations for chemical treatment and for disinfection of drinking water
- ✓ evaluation of dangers and dangerous events
- ✓ insufficiencies in determination of extent, frequency and sampling places for the operational control of water quality (in the source, during treatment, accumulation and distribution....)

4. Other insufficiencies

- ✓ insufficient description of sources, wrong defined technological procedures of water treatment, missing maps with demarcation of sources, schemes of water supplies....

Monitoring program - conclusions

❖ Reasons for introduction

✓ transposition of requirements of EU Directive

✓ needs of the practice:

- setting of criteria for providing of relevant information about the whole supply system
- incorporation of hygienic aspect
- creation of legislation support for the supervision activity of RPHA
- unification of requirements for all suppliers of drinking water
- **enforcing of risk oriented approach**

❖ First experiences

❖ different levels

❖ suitable tool for control of quality of drinking water

❖ **contributions for RPHA** – useful information and an overview about the whole system = better quality of supervision over supplying

❖ **contributions for suppliers** – update of data, detection of insufficiencies, application of unified requirements

❖ **approach of suppliers** – from initial distrust to positive response.....**but also fulfillment of only necessary duties**

Introduction of programs
– the way to increase health safety of drinking water

Still ahead of us:

1. Update of *Guidebook for creation of monitoring programs*

- development of samples (with regard to supply system and character of supplier)
- catalogues' update of dangers and dangerous events
- identification of other insufficiencies

2. Support mandatory introduction of risk management in drinking water supply

3. Implementation of new European directive for drinking water

Thank you for your attention

zuzana.valovicova@uvzsr.sk